Abstract ID : 161

Title : Spatially explicit foraging ecology of juvenile Steller sea lions (Eumetopias jubatus)

Category : Ecology

Student : Doctoral

Preferred Format : Poster Presentation

Abstract : The proximate cause of the recent decline in the western population of Steller sea lions (Eumetopias jubatus [Schreber, 1776]) appears to be chronically reduced juvenile survival. Contributing factors may include nutritional stress, synergistic effects of fisheries, or environmental perturbations. As a result, the foraging ecology of this species has been studied extensively over the past decade by researchers at the National Marine Mammal Laboratory. From 2000 to 2003, satellite-depth recorders (SDRs) were deployed on juvenile Steller sea lions (n = 81) in the Aleutian Islands, Gulf of Alaska, and Washington, allowing for temporal and spatial replication across heterogeneous conditions. Although these data have been used to provide detailed information on the movements and diving behaviors of these animals, further analyses of these data are warranted to examine how Steller sea lions alter their foraging strategies in response to seasonal or annual changes of oceanographic features, which ultimately affect the distribution of prey. Because of the limitations associated with the dive data collected by SDRs, satellite relayed data loggers (SRDLs) were also deployed on juvenile Steller sea lions (n=6) during 2002 and 2003 to monitor patterns of spatially explicit diving behavior within areas of the Aleutian Islands and Gulf of Alaska. Data indicated that dive parameters collected using SRDLs (i.e. depth = 11.4 ± 3.6 m, duration = 46.5 ± 15 sec) were within ranges of those calculated from SDR data. To quantify what ecological processes were influencing the foraging ecology and habitat use of these sea lions we examined their distribution and movements, along with selected diving behaviors (i.e. depth, duration, and shape of dives, and a time allocation at depth index) with respect to oceanic conditions (i.e. bathymetry, temperature at depth, sea surface temperature, chlorophyll concentrations, and ocean color) within the context of a spatially explicit database.